



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/637,221

08/08/2003

Randall M. Smith

400290

3334

27717 7590 03/12/2008  
SEYFARTH SHAW LLP  
131 S. DEARBORN ST., SUITE 2400  
CHICAGO, IL 60603-5803

EXAMINER

LAURITZEN, AMANDA L

ART UNIT

PAPER NUMBER

3737

MAIL DATE

DELIVERY MODE

03/12/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/637,221	<b>Applicant(s)</b> SMITH ET AL.	
	<b>Examiner</b> A. LAURITZEN	<b>Art Unit</b> 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-46 and 48-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-46 and 48-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

This action is in response to communications filed 18 January 2008 with a concurrent request for continued examination (RCE). Amendments to claims 41 and 46 are not interpreted to raise issues of new matter.

***Response to Arguments***

Applicant's arguments have been fully considered but they are not persuasive. Regarding remarks directed to the concept of a moving microwave antenna, Examiner has addressed this point as necessary and applicable to claim 22, in that the antenna of Meaney is disclosed to move along coordinates by a motorized system [0012-13] for an actuator and drive/shaft. Additionally, the antenna contained within the probe of Carr is disclosed to move along coordinates (referring to Fig. 6 for a coordinate grid; also col. 9, lines 43-60). Remarks directed to collecting data at "discrete scan points across the entire scan envelope" are not relevant because this feature is not positively recited within the claims.

Regarding Meaney teaching where Carr is deficient, that it is known in the art to position the patient in a prone position, Applicant alleges that Meaney does not teach that "the patient's breast is in a fixed position while the patient lies in a prone position," but Examiner must disagree. The supporting structure of Figs. 2 and 3 of Meaney show an apparatus surrounding the breast that will serve to fix position of the breast while the patient is positioned prone on the examination table. Fig. 12 additionally shows the breast in fixed position by the array.

Examiner maintains that it is appropriate to modify the teachings of Carr by the disclosure of Meaney to position the patient in prone fashion, as both prone and supine positionings are well known within the art and the mere preference for one arrangement over another does not in fact corrupt the technology employed in the microwave scan. The proposed

Art Unit: 3737

modification of Meaney is regarded as a simple rearrangement of mechanical parts in a more complex electrical system. The method steps and technologies utilized are still applicable regardless of the orientation of the patient (and/or design of the patient supporting structure in how it accommodates or receives the patient).

Regarding an *optically* transparent scan plate, it is maintained that the Examiner's showing that the plate of Carr is generally transparent meets this feature, as transparency is an optical property.

### **DETAILED ACTION**

#### ***Priority***

1. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-46 and 48-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr (US 5,983,124) in view of Meaney et al. (US 2004/0077943).

Carr discloses an apparatus and associated method for screening or diagnosing cancer in a breast of a patient, comprising: a table; a support system for supporting the patient's breast in a fixed position; a microwave assembly including antenna, source, receiver, and inherent processor; and an orientation system for orienting the surface of the breast in known positions

Art Unit: 3737

with respect to anatomy of the patient and locations of the antenna (microwave-transparent padded scan plate shown in Figs. 1 and 6 enables orientation of the breast with respect to both patient anatomy and antenna(s) located within the probe as in co. 4, lines 20-35; col. 5, lines 10-35; col. 9, lines 43-60; also col. 2, line 61- col. 3, line 10 in which positioning is with respect to antenna(s)).

The method and system of Carr substantially includes all features of the claimed invention, but is not specific to providing a patient in a prone position on a table; however, Meaney et al. teach supporting structures that accommodate prone-lying patients (Fig. 12). Since the record has shown that both supporting structures accommodating supine and prone-positioned patients are known within the art of breast cancer diagnostics, it is considered an obvious matter of design choice within the skill of the art. The method steps and technologies utilized are still applicable regardless of the orientation of the patient (and/or design of the patient supporting structure in how it accommodates or receives the patient).

Regarding claim 7, Carr discloses a microwave-transparent scan plate (shown in Figs. 1 and 6) but does not disclose the dielectric constant of the plate to be within the range of 1.7-9; however other materials of the apparatus are disclosed within that range (e.g., the probe at col. 8, lines 46-54). Because the plate is microwave-transparent and appropriate for imaging, it is understood that this component of the apparatus is also within this dielectric range.

Regarding claim 10, Examiner understands an air gap of less than 3 mm to be provided between the antenna and scan plate of the apparatus of Carr as the antenna is disclosed to make intimate contact (col. 5, lines 32-35), which is most broadly interpreted to encompass close proximity and/or material touching.

Regarding claim 25, the support member is taken to be the grid/scan plate (of Figs. 1 and 6) of the Carr reference.

Regarding claims 3-5, Carr discloses all limitation of the invention as substantially claimed including examination of the armpit area (axillary gland at col. 2, line 65) and as detailed in above section 5, but does not disclose incorporating an optical camera in the microwave imaging system; however, in the same field of endeavor Meaney et al. disclose acquiring optical images that are to be overlaid with the microwave scan images (para. 14 in which microwave images are “spatially co-registered” with a 3-D optical image; see also claim 70 for “overlaying” with a 3-D optical image). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the optical imaging system with the microwave imaging system as taught by Meaney for the purpose of corresponding microwave-detected internal abnormalities with a specific visual reference of the breast exterior (for motivation, see para. 54 of Meaney).

Regarding claim 21, neither Carr nor Meaney expressly disclose digital camera viewing means, but it would have been obvious to provide a digital camera for the optical imaging means disclosed with the microwave/optical imaging system of Meaney as digital imaging systems are well known in the art to provide convenience and flexibility for image acquisition, processing, and viewing.

Regarding claim 22, the antenna (contained within the probe of Carr) is disclosed to move along coordinates (refer to Fig. 6 for coordinate grid; see also col. 9, lines 43-60), but this movement is not disclosed as provided by a motorized system; however, movement of the antenna disclosed by Meaney is provided with an actuator/drive shaft (paras. 12-13). Since

Art Unit: 3737

movement of the antenna of Meaney does not require physical placement on the part of the medical examiner, the drive shaft inherently includes some sort of motorized system (additionally, a motor is a simple means of actuation that is well known in the art). It would have been obvious to include a motorized actuator as described by Meaney for movement of the antenna along coordinates as disclosed by Carr in order to enhance accuracy and precision by automating placement of the probe.

Regarding claims 32-33, archiving the displayed image and patient data are taken as image and data storing means as disclosed by both Carr and Meaney.

3. Claims 11, 12, 13-16, and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr '124 in view of Haddad et al. (US 6,454,711).

Carr discloses all features of the invention as substantially claimed but does not include microwave absorbing material, but in the same field of endeavor Haddad et al. disclose microwave absorbing material (col. 3, line 27). It would have been obvious to incorporate use of a microwave absorbing material for the purpose of reducing residual crosstalk between the antennas of the apparatus of Carr (for motivation, see Haddad col. 3, lines 27-28).

4. Claim 23 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr '124 in view of Horton et al. (US 5,168,514).

Carr discloses all features of the invention as substantially claimed but does not include an adjustable upper surface section of the examination table that enables the patient to sit in an upright position; however, Horton et al. disclose adjustable back-rests and other surfaces as part of an examination table that provide a patient with support in a seated position while undergoing medical procedures in which breast tissue is targeted (col. 2, lines 44-47). It would have been

Art Unit: 3737

obvious to one of ordinary skill in the art to provide the breast examination table of Carr with adjustable support members disclosed by Horton in order to position the patient such that the targeted anatomy is fully accessible to the medical examiner.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. LAURITZEN whose telephone number is (571) 272-4303. The examiner can normally be reached on Monday - Friday, 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian L Casler/

Supervisory Patent Examiner, Art Unit 3737

A. LAURITZEN  
Examiner  
Art Unit 3737

/A. L./

Examiner, Art Unit 3737



Application/Control Number: 10/637,221  
Art Unit: 3737

Page 8